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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,762	02/06/2002	Jeff Moler	VTE-120-A	6216

7590 02/11/2003

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EXAMINER	
DOUGHERTY, THOMAS M	
ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/067,762	Applicant(s) MOLER, JEFF	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *21 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 23-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *21 and 22* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5, 6, 8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant's election with traverse of the Group I claims in Paper No. 9 is acknowledged. The traversal is on the ground(s) that claim 22 is a linking claim between between the process claim 21 and product claims 1-20 and 23-27. This is not found persuasive because of the reasons for restriction requirement presented in paper 7. *In arguendo*, were the claims to be considered, the claims themselves are drawn to a mathematical algorithm for making a device which is not classified with the elected claims. The algorithm itself may be non-patentable subject under U.S.C. 101.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-20, 25 and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Asano (US 4,783,610). Asano shows (fig. 1) an identical placement of components as the Applicant including an apparatus for moving at least one of a pair of opposing surfaces (inner surfaces of 12) in response to an electrical activation comprising: a support (11) including a rigid non-flexing portion, at least one pivotable (13) arm portion (12) integrally extending from the rigid portion (11), at least one opposing surface (inside surface of 12, facing spring) connected to the at least one pivotable arm portion (12) for movement relative to the rigid portion (11), and a force

transfer member (14, 15) integrally extending from the rigid portion (11) and operable positioned for driving the at least one pivotable arm portion (112) in rotational movement; and an actuator (19) operably engaged between the rigid portion (11) and the force transfer member (14, 15) for driving the force transfer member (14, 15) relative to pivot (13) the at least one pivotable arm portion (12) in response to an electrical activation of the actuator (19).

The support (11) is a single piece.

The actuator (19) is a piezoelectric device (see title).

The rigid portion (11) is C-shaped including a web (13-15) extending between a pair of rigid arm portions (arms of 11).

One of the pivotable arm portions (12) is pivotably connected (13) to one of the rigid arm portions (arms of 11) and the other of the pivotable arm portions (12) is pivotable connected (13) to the other of the rigid arm portions (arms of 11).

The actuator (19) includes opposite ends (one at 14 and one at 11) and produces a spatial displacement between the opposite ends in response to an electrical activation.

The rigid portion (11) supports a seat surface.

One of the opposite ends of the actuator (19) is a planar surface and the seat surface supported by the rigid portion (11) is a planar surface with the planar end surface of the actuator (19) disposed adjacent to the planar seat surface supported by the rigid portion (11).

The planar end surface of the actuator (19) applies force to the planar seat surface supported by the rigid portion (11) in response to a spatial displacement of the actuator (19).

The planar end surface of the actuator (19) operable contacts the planar seat surface supported by the rigid portion (11) at a minimum operating spatial displacement of the actuator (19).

The planar end surface of the actuator (19) operably connects the planar seat surface supported by the rigid portion (11) at a maximum operating spatial displacement of the actuator (19).

The planar end surface of the actuator (19) operably contacts the planar seat surface supported by the rigid portion (11) at all spatial displacements between a minimum operating spatial displacement of the actuator (19) and a maximum operating spatial displacement of the actuator (19).

The force transfer member (14, 15) includes a seat surface.

One of the opposite ends of the actuator (19) is a planar surface and the seat surface of the force transfer member (14, 15) is a planar surface with the planar end surface of the actuator (19) disposed adjacent to the planar seat surface of the force transfer member (14, 15).

The planar end surface of the actuator (19) applies force to the planar seat surface of the force transfer member (14, 15) in response to a spatial displacement of the actuator (19).

The planar end surface of the actuator (19) contacts the planar seat surface of the force transfer member (14, 15) at a maximum operating spatial displacement of the actuator (19).

The planar end surface of the actuator (10) operably contacts the planar seat surface of the force transfer member (14, 15) at a maximum operating spatial displacement of the actuator (19).

The planar end surface of the actuator (19) operably contacts the planar seat surface of the force transfer member (14, 15) at all spatial displacements between a minimum operating spatial displacement of the actuator (19) and a maximum operating spatial displacement of the actuator (19).

The rigid portion (11), the pivotable arm portion (12) and the force transfer member (14, 15) meet at one location to form a force transfer mechanism. Note that the Applicant's rigid support (12) is connected at a hinge portion to the first pivotable arm (18) and the pivotable arm (18) is likewise connected to the force transfer member by a hinge, thus the structure shown by the Applicant is identical to that shown by Asano.

The apparatus further comprising an integral spring (13) defined where at least one pivotable portion (12) attaches to the rigid portion (11).

The apparatus further comprising a rigid non-flexing seat formed on the force transfer member (14), the actuator (19) operably engaged between the rigid portion of the support (11) and the rigid seat of the force transfer member (14) for driving the rigid non-flexing seat of the force transfer member (14) relative to the rigid portion of the

support (11) to pivot the at least one pivotable arm (12) in response to electrical activation of the actuator (19).

The apparatus further comprising: a pair of hinge portions (13, 15), one hinge portion (15) integrally extending between the force transfer member (14, 15) and the arm (12) and another hinge portion (13) integrally extending between the rigid portion of the support (11) and the at least one pivotable arm (12), the pair of hinge portions (13, 15) extending parallel and in close proximity with respect to one another.

Claims 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Asano (US 4,783,610). In addition to the invention of Asano as noted above he further shows (fig. 1) at least one hinge portion (15) extending at an angle (arguable 90^0) from the force transfer member (14) to the at least one pivotable arm (12) for pivoting the arm (12).

Claims 1-20 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamauchi et al. (JP 2-218579). Yamauchi et al. show (fig. 4) an apparatus for moving at least one of a pair of opposing surfaces (inner surfaces of 4, 5) in response to an electrical activation comprising: a support (3) including a rigid non-flexing portion, at least one pivotable (6, 7) arm portion (4, 5) integrally extending from the rigid portion (3), at least one opposing surface (inside surfaces of 4, 5) connected to the at least one pivotable arm portion (4, 5) for movement relative to the rigid portion (3), and a force transfer member (5b) integrally extending from the rigid portion (3) and operable positioned for driving the at least one pivotable arm portion (4, 5) in rotational movement; and an actuator (2) operably engaged between the rigid portion (3) and the force transfer member (5b) for driving the force transfer member (5b) relative to pivot (6,

7) the at least one pivotable arm portion (4, 5) in response to an electrical activation of the actuator (2).

The support (3) is a single piece.

The actuator (2) is a piezoelectric device (see title).

The rigid portion (3) is C-shaped including a web (e.g. 7, 5a, 5b) extending between a pair of rigid arm portions (arms of 3).

One of the pivotable arm portions (4) is pivotably connected (7) to one of the rigid arm portions (arms of 3) and the other of the pivotable arm portions (5) is pivotably connected (6) to the other of the rigid arm portions (arms of 11).

The actuator (2) includes opposite ends (one at 3 and one at 5b) and produces a spatial displacement between the opposite ends in response to an electrical activation.

The rigid portion (11) supports a seat surface.

One of the opposite ends of the actuator (2) is a planar surface and the seat surface supported by the rigid portion (3) is a planar surface with the planar end surface of the actuator (2) disposed adjacent to the planar seat surface supported by the rigid portion (3).

The planar end surface of the actuator (2) applies force to the planar seat surface supported by the rigid portion (3) in response to a spatial displacement of the actuator (2).

The planar end surface of the actuator (2) operable contacts the planar seat surface supported by the rigid portion (3) at a minimum operating spatial displacement of the actuator (2).

The planar end surface of the actuator (2) operably connects the planar seat surface supported by the rigid portion (3) at a maximum operating spatial displacement of the actuator (2).

The planar end surface of the actuator (2) operably contacts the planar seat surface supported by the rigid portion (3) at all spatial displacements between a minimum operating spatial displacement of the actuator (2) and a maximum operating spatial displacement of the actuator (2).

The force transfer member (5a, 5b) includes a seat surface (flat portion that touches actuator).

One of the opposite ends of the actuator (2) is a planar surface and the seat surface of the force transfer member (5a, 5b) is a planar surface with the planar end surface of the actuator (2) disposed adjacent to the planar seat surface of the force transfer member (5a, 5b).

The planar end surface of the actuator (2) applies force to the planar seat surface of the force transfer member (5a, 5b) in response to a spatial displacement of the actuator (2).

The planar end surface of the actuator (2) contacts the planar seat surface of the force transfer member (5a, 5b) at a maximum operating spatial displacement of the actuator (2).

The planar end surface of the actuator (2) operably contacts the planar seat surface of the force transfer member (5a, 5b) at a maximum operating spatial displacement of the actuator (2).

The planar end surface of the actuator (2) operably contacts the planar seat surface of the force transfer member (5a, 5b) at all spatial displacements between a minimum operating spatial displacement of the actuator (2) and a maximum operating spatial displacement of the actuator (2).

The rigid portion (3), the pivotable arm portion (4, 5) and the force transfer member (5a, 5b) meet at one location (7) to form a force transfer mechanism. The apparatus further comprising an integral spring (7) defined where at least one pivotable portion (4, 5) attaches to the rigid portion (3).

The apparatus further comprising a rigid non-flexing seat formed on the force transfer member (5a, 5b), the actuator (2) operably engaged between the rigid portion of the support (3) and the rigid seat of the force transfer member (5a, 5b) for driving the rigid non-flexing seat of the force transfer member (5a, 5b) relative to the rigid portion of the support (3) to pivot the at least one pivotable arm (4, 5) in response to electrical activation of the actuator (2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Asano (US 4,783,610) or Yamauchi et al. (JP 2-218579) in view of Hattori et

al. (US 4,937,489). Given the invention of Asano or of Yamauchi et al. as noted above, neither shows an adjustable screw connected to the rigid portion and engagable with the actuator for preloading the actuator with compressive force against the force transfer member nor does either show an adjustable means for preloading the actuator positioned between the rigid portion and the force transfer member, the adjustable preloading means operable for imparting a predefined compressive force on the actuator.

Hattori et al. show (fig. 1) an apparatus for moving at least one of a pair of opposing surfaces (inner surfaces of 12, 15) in response to an electrical activation comprising: a support (where the screw is) including a rigid non-flexing portion (see claim 1), at least one pivotable (11a) arm portion (12, 15) integrally extending from the rigid portion (where the screw is), at least one opposing surface (inside surfaces of 12, 15) connected to the at least one pivotable arm portion (12, 15) for movement relative to the rigid portion (where screw is), and a force transfer member (opposite side of actuator at 6) integrally extending from the rigid portion (11) and operably positioned for driving the at least one pivotable arm portion (12, 15) in rotational movement; and an actuator (1) operably engaged between the rigid portion (where screw is) and the force transfer member (opposite side of actuator at 6) for driving the force transfer member relative to pivot (11a) the at least one pivotable arm portion (12, 15) in response to an electrical activation of the actuator (1).

Hattori et al. further show an adjustable screw (23) connected to the rigid portion (where the screw is) and engagable with the actuator (20) for preloading the actuator

with compressive force against the force transfer member (on top of actuator at end opposing the screw) nor does he show an adjustable means (23) for preloading the actuator positioned between the rigid portion (where the screw is) and the force transfer member (at end of actuator opposite to the screw), the adjustable preloading (23) means operable for imparting a predefined compressive force on the actuator (20).

Hattori et al. do not show a rigid portion including arms, only the base component where the screw is.

It would have been obvious to one having ordinary skill in the art to make the device of either Asano or Yamauchi et al. adjustable by use of an adjustable screw at the time of either invention, such as is taught by Hattori et al. because this would allow for an uncomplicated operation since this arrangement allows for a satisfactory displacement motion. This is noted by Hattori et al. at col. 1, lines 48-60.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Asano (US 4,783,610) or Yamauchi et al. (JP 2-218579) in view of Jaenker (US 6,294,859). Given the invention of Asano or of Yamauchi et al. as noted above, neither shows an adjustable screw connected to the rigid portion and engagable with the actuator for preloading the actuator with compressive force against the force transfer member nor does either show an adjustable means for preloading the actuator positioned between the rigid portion and the force transfer member, the adjustable preloading means operable for imparting a predefined compressive force on the actuator.

Jaenker shows (fig. 3) an apparatus for moving at least one of a pair of opposing surfaces (e.g. inner surfaces of 116) in response to an electrical activation comprising: a support (where the screws are) including a rigid non-flexing portion, at least one pivotable (110) arm portion (116) integrally extending from the rigid portion (where the screws are), at least one opposing surface (inside surfaces of 116) connected to the at least one pivotable arm portion (116) for movement relative to the rigid portion (where screws are); and an actuator (e.g. 106) operably engaged to the rigid portion (where screws are) for driving the the at least one pivotable arm portion (116) in response to an electrical activation of the actuator (106).

Jaenker further shows an adjustable screw (28) connected to the rigid portion (where the screw is) and engagable with the actuator (106) for preloading the actuator with compressive force. See discussion at column 8, ll. 51-60.

Jaenker shows an adjustable means (28) for preloading the actuator positioned at the rigid portion (where the screw is), the adjustable preloading (28) means operable for imparting a predefined compressive force on the actuator (106). See discussion at column 8, ll. 51-60.

He does not show a specific force transfer member extending from the rigid portion so that it is operably positioned for driving the at least one pivotable arm portion in rotational movement. Jaenker does not show a rigid portion including arms, only the base component where the screw is.

It would have been obvious to one having ordinary skill in the art to make the device of either Asano or Yamauchi et al. adjustable by use of an adjustable screw at

the time of either invention, such as is taught by Jaenker because this would allow for compensation due to expansion caused by temperature, additionally, it would make the device more versatile.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd

tmd

January 31, 2003

Thomas M. Dougherty

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